

REMARKS

I. Status of the Application

Claims 1-12 are pending in the application. Claims 1-12 stand rejected. No claims have been amended.

II. Response to Rejections Under 35 U.S.C. § 102(b) and § 103(a)

Claims 1, 2 and 7-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by JP 05-167915 to Daikichi (hereafter, “Daikichi”).

Claims 1-6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,831,676 to Takahashi, et al. (hereafter, “Takahashi”) in view of Daikichi.

Applicant respectfully traverses the rejections of claims 1-12. Previously presented independent claim 1 recites:

An image sensing apparatus comprising:

an image sensing element that outputs a charge signal in accordance with a light amount of an object image formed on a light-receiving surface;

a light-shielding unit that shields said image sensing element from incident light;

an exposure amount loss calculation unit that **calculates a loss in exposure amount for said image sensing element caused by operation of said light-shielding unit;**

a plurality of compensation units that compensate the loss calculated by said exposure amount loss calculation unit;

a setting unit for setting at least one of an image sensing mode and an image sensing condition; and

a compensation control unit that **controls a compensation amount for each compensation unit based on the loss calculated by said exposure amount loss calculation unit** in accordance with the at least one of the image sensing mode and the image sensing condition that is set by said setting unit. (emphasis added)

Applicant respectfully submits that Daikichi and Takahashi, taken either alone or in combination, do not teach or suggest an image sensing apparatus comprising “an exposure amount loss calculation unit that calculates a loss in exposure amount for said image sensing element caused by operation of said light-shielding unit;... and a compensation control unit that controls a compensation amount for each compensation unit based on the loss calculated by said

exposure amount loss calculation unit in accordance with the at least one of the image sensing mode and the image sensing condition that is set by said setting unit”, as required by at least independent claim 1. Previously presented independent claims 9 and 10 recite similar features to claim 1 as described herein.

Applicant submits that the claimed subject matter relates to correcting and/or compensating the loss in exposure amount caused by operation of the light-shielding unit (mechanical shutter). It takes time from when the light-shielding unit starts traveling until it completely shields the image sensing element. The loss in exposure amount caused by operation of the light shielding unit is calculated by the exposure amount loss calculating unit and the calculated amount is compensated in accordance with the at least one of the image sensing mode and the image sensing condition that is set by the setting unit.

By contrast, Daikichi is silent about the exposure loss caused by the operation of a light-shielding unit (mechanical shutter). Without being aware of such exposure loss, Daikichi would not be able to compensate the exposure loss.

The Office Action asserts that “Daikichi teaches if the shutter speed is set to 1/15 sec, but the shooting speed is set to 1/30 sec, [t]he shutter speed is too quick and the image will be under exposed by about ½. The system controller (9) changes the shutter speed to 1/30 from 1/15 and calculates the shutter velocity ratio $(1/15)/(1/30) = 2$. This multiplier is then used to obtain the proper exposure (Para 11).” (Office Action, page 3)

However, Daikichi merely discloses calculating the exposure difference between a shutter speed set for continuous shooting and a shutter speed obtained by referring to the program locus diagram in Fig. 2, needed for attaining an image of appropriate exposure without being affected by camera shaking when sensing a low luminance object. Daikichi then compensates the sensed image by gain control in accordance with the calculated exposure difference to obtain an image of appropriate brightness. (paragraph 0011)

Thus, in view of the above, Daikichi merely compensates the shutter speed differences caused by the brightness of an object field, but provides no teaching or suggestion of correcting/compensating “a loss in exposure amount for said image sensing element caused by operation of said light-shielding unit” as recited in at least claim 1.

Furthermore, Takahashi discloses an AGC circuit 5, a CCD circuit 12 and an iris device circuit 14 and controls these circuits to adjust exposure in accordance with the luminance

information of the light metering area specially set in the image frame. However, Takahashi is silent about calculating “a loss in exposure amount for said image sensing element caused by operation of said light-shielding unit” and compensating for this loss as required by at least claim 1.

Therefore, Daikichi and Takahashi, taken either alone or in combination, do not teach or suggest at least “an exposure amount loss calculation unit that calculates a loss in exposure amount for said image sensing element caused by operation of said light-shielding unit...and a compensation control unit that controls a compensation amount for each compensation unit based on the loss calculated by said exposure amount loss calculation unit in accordance with the at least one of the image sensing mode and the image sensing condition that is set by said setting unit” as required by at least claim 1.

In view of the above, at least independent claim 1 is believed distinguishable over Daikichi and Takahashi for at least the reasons discussed above.

Reconsideration and withdrawal of the rejections of claims 1, 9 and 10 under 35 U.S.C. §102(b) and §103(a) is respectfully requested.

Applicant has chosen in the interest of expediting prosecution of this patent application to distinguish the cited documents from the pending claims as set forth above. However, these statements should not be regarded in any way as admissions that the cited documents are, in fact, prior art.

Applicant has not specifically addressed the rejections of the dependent claims because Applicant submits that the independent claims from which they respectively depend, either directly or indirectly, are in condition for allowance as set forth above. Accordingly, the dependent claims also are in condition for allowance. Applicant, however, reserves the right to address such rejections of the dependent claims should such be necessary.

Applicant believes that the application is in condition for allowance and such action is respectfully requested.

CONCLUSION

Based on the foregoing amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims and allowance of this application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4500, Order No. 1232-5217. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No 13-4500, Order No. 1232-5217. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
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Dated: March 4, 2008

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